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Niche markets in the agricultural enterprise mix: Farm profit optimization and risk analysis

Abstract

An existing MS Excel computer-based program (FARMOR) was further developed and enhanced to assist niche market producers in making appropriate and profitable choices for their enterprises.

Keywords

ISU Iowa Beef Center, Business management distribution and marketing, Hoops and alternative livestock systems, Models and assessment tools, Niche meat dairy and poultry

Disciplines

Agribusiness | Marketing | Meat Science | Statistical Models

Niche markets in the agricultural enterprise mix: Farm profit optimization and risk analysis

Abstract: An existing MS Excel computer-based program (FARMOR) was further developed and enhanced to assist niche market producers in making appropriate and profitable choices for their enterprises.

Principal Investigator:

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Budget:
\$16,400 for year one

Q When resources are limited, how can those resources best be allocated among potential enterprises to maximize long-term profitability given market volatility and still maintain production and conservation restraints?

A The computer program used linear programming to help in the decision making of which enterprises could produce the best returns based on resources and production restraints.



MARKETING

Background

Adding value to a commodity by qualifying it for a niche or specialty market can be a good way to improve market price, but it often requires extra effort, expense and risk taking. This project supported the development of a MS Excel-based linear programming and budgeting program to help producers compare the limitations and benefits of incorporating a natural, organic, grass-fed or other enterprise into their array of potential commercial enterprises.

The project objectives were to:

1. Produce a computer-based interactive optimization program to be used by and to educate clients of the ISU Beginning Farmer Center about the risks and benefits of niche markets.
2. Make available to beginning and existing producers, an interactive application that assists in the discovery of a profit-maximizing set of niche and traditional enterprises, while adhering to resource limitations and constraints.
3. Educate producers with an interest in producing niche market commodities about the associated risks with customizable simulation and risk analysis.
4. Provide producers with examples of risks related to scenario operations typically found in Iowa with niche and traditional enterprises in their business plan.

Approach and methods

This project had three general phases. The first phase was the development of a computer program referred to as FARMOR-Niche to simulate a customizable scenario farm. The program was built around the framework of an existing optimization program, which helped reduce the amount of time needed for development. FARMOR-Niche was unique in several ways. It included extended enterprise budgets for livestock and crops commonly raised in Iowa, but produced in a manner that qualified them for niche marketing. Integrated marketing strategies and expenses also can be included in the program's analysis of a more integrated niche market.

For accurate development, information concerning specialized production for Iowa niche markets was compiled by the principal investigator. Enterprises included in the program are commodities commonly grown in Iowa and for which a niche market is established. FARMOR-Niche includes enterprises that produce:

- conventional, natural, organic and grass-fed beef;
- conventional, natural and antibiotic-free pork;
- conventional, organic, pesticide-free, and GMO-free corn and soybeans;
- conventional, pesticide-free, and fertilizer-free forage crops, oats and pasture grazing.

Other enterprises may be added if the production information compiled indicates that it is necessary. Specialty or exotic crops and livestock were not expressly included in FARMOR-Niche program but can be added through the modification of the existing commodity budgets.

Once the preliminary production information was compiled, applicable enterprise budgets were developed for each niche market product. Input from producers currently using niche markets was employed to improve the needed enterprise budgets. With the budgets complete, the optimization tool was assembled using linear programming to select the feasible enterprise mix with the maximum net farm profit. Because the optimal enterprise mix is based on average yields and prices, a risk analysis segment was added to gauge the risk of an enterprise mix over historic yield and price deviations.

The second phase of this program was the development of example scenarios. FARMOR-Niche can be used to produce scenarios of different farm operations with enterprises that cater to niche markets. The final phase of this project is the delivery of FARMOR-Niche for public and producer utilization.

Results and discussion

The example scenarios for FARMOR-Niche were presented by Shane Ellis at a workshop hosted by the Farm Bureau of Hardin County in February 2007. Twenty producers, involved in niche markets, attended the meeting. Those who attended found the program interesting, however, from the questions and discussion it became apparent that the producers in attendance were involved in small acreage and specialty crops production. While FARMOR-Niche was written for more commercial-sized applications in the production of traditional commodities, it would be possible to tailor its budgets to a specialty crop. The general response from those producers in Hardin County was a moderately high interest in the concept of the program, but few expressed an interest in using the program on their own without assistance. The case studies presented were of interest to the audience but were not applicable to the small operations of organic vegetables that most of the attendees cultivated.

The FARMOR-Niche program, and a case study of changing a cow-calf based operation into a grass-fed finished beef enterprise, were presented to a cattle producer in Story County, Iowa, with a herd of 35 beef cows. This producer was interested in the feasibility of making such a change in his operation. The producer found the budgeting portion of the program very useful and the risk and profit analysis interesting. When asked for feedback, the producer responded the program and case study were

not major determining factors in his decision-making, though he did appreciate the additional input and perspective.

The FARMOR-Niche program was introduced to the ISU Extension farm management team at their October 2006 fall in-service meeting. They were shown an example scenario and how the results could be read. The group was appreciative of the chance to see the tool and made several suggestions for changes. The general response was positive but they suggested that its mostly likely application was as a research tool and that not many producers would utilize its level of statistical analysis.

Conclusions

The program used by this project is the Farm Optimization and Risk program for niche commodities or FARMOR-Niche. Producers and researchers used the program to determine the best allocation of limited resources such as land, labor, and capital to maximize profitability. The program also identified limiting factors and reported the potential improvement in profitability if a limitation were relaxed. Several example case studies were developed with actual Iowa producers in mind.

Leveraged funds

No additional funds were leveraged by this project.

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